UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604

DATE: MAR 22 2011

SUBJECT: Announced Clean Air Act Inspection of Citgo Petroleum Corporation, Lemont, IL

FROM: Virginia Palmer, Environmental Engineer VP
Air Enforcement and Compliance Assurance Section (MN/OH)

THRU: Bill MacDowell, Chief
Air Enforcement and Compliance Assurance Section (MN/OH)

TO: File

Date of Inspection February 7, 2011

Attendees
Virginia Palmer, EPA, Environmental Engineer
Mark Ackerman, EPA, Environmental Engineer
Brigitte Postel, Citgo, Environmental
Claude Harmon, Citgo, Manager of HSS&E
Tom Zioboro, Citgo, Heavy Craft Maintenance Field Supervisor
Bill Wittig, Citgo, Heavy Craft Level 3 Technician (Vacuum Truck Operator)
Tim Carroll, Citgo, Industrial Hygienist
Eric Roberts, Citgo, Industrial Hygienist

Company Description and Background

Physical Location: Situated at New Avenue and 135th Street in Lemont, IL

Mailing Address: Citgo Petroleum Corporation
600 Thilmany Road
Lemont, IL 60439

Phone Number: (630) 257-7761

Primary Contact: Brigitte Postel

Purpose of Inspection

To assist in determining compliance with rules and regulations promulgated under the authority of the Clean Air Act.

Pre-Inspection Activities

We (Virginia Palmer and Mark Ackerman of U.S. EPA) coordinated with Citgo's environmental staff, specifically Brigitte Postel and Matt Klickman, to coordinate testing of a vacuum truck that loads benzene-containing waste from a tank. The purpose of the testing is to quantify any benzene emissions coming out of the vent from the vacuum pump. We arranged the timing of the testing with the Citgo personnel and coordinated to have the same instrument, an Ultra-Rae 3000 with a 9.8 eV lamp and a benzene separator tube ("PID"), so that we would could compare readings. When the Ultra-Rae 3000 is equipped with both the 9.8 eV lamp and the benzene separator tube, it measures only benzene. When it is missing either the 9.8 eV lamp or the benzene separator tube, it will measure total hydrocarbon as benzene.

Entrance and Opening Conference Summary

We arrived at Citgo Petroleum Corporation's facility, located in Lemont, IL, ("the facility" or "Citgo") at approximately 13:05 on February 24, 2011. We checked in at the security desk and received visitor's passes. Ms. Postel met us at the security desk and took us to her office to drop off our things. We saw Claude Harmon, the Manager of HSS&E, who we talked to for a few minutes. He asked about the regulatory approach to the testing, and we told him that we hadn't looked in to it much at this point, since we viewed the test as the first step in determining whether there was anything to be concerned about. We said that if we found that there were emissions coming from the truck, then we would look into the regulatory applicability further. We asked him if he wanted to meet after the testing to discuss our findings, and he said that Ms. Postel would let him know what happened. We then went with Ms. Postel to the safety center and picked up flame-retardant coveralls. After changing into the coveralls we proceeded to the location of the benzene loading trucks. We arrived at the benzene loading trucks at approximately 13:40. Once we arrived, we calibrated the time on the PID to the time on our watches. After calibrating, we saw that the actual time read 1:43:40 PM, and the PID read 13:43:42, so the PID was 2 seconds ahead.

Testing Observations/Summary

We verified that the PID was reading 0.00 ppm before starting the test. We met Tom Zioboro, Heavy Craft Maintenance Field Supervisor, Bill Wittig, Heavy Craft Level 3 Technician (vacuum truck operator), Tim Carroll, Industrial Hygienist, and Eric Roberts, Citgo, Industrial Hygienist. They had two instruments, one which was set up to read benzene-specific measurements, and one which was set up to read total hydrocarbon as benzene. They informed us that they would use both instruments during the test. They also informed us that both vacuum trucks were empty. The vacuum trucks are differentiated by their numbers, #470 and #7294. We told Ms. Postel that we would send her a copy of the data collected during the monitoring and both our pre- and post-calibration sheets. Ms. Postel told us that Mr. Carroll and Mr. Roberts would do the monitoring using the PID while wearing respirators. The vent from the vacuum truck is

located about 7 feet off the ground but the stack curves from vertical to horizontal at the exit, so one of the operators used a ladder and the other reached overhead to get the PIDs in the exit stream. Mr. Wittig started pumping the benzene-containing waste into vacuum truck #470 at 14:00:43. From the readout, we saw that EPA's PID showed emissions of up to 1700 ppm within 1 minute of the start of the test, and up to 3400 ppm within 2 minutes of the start. When the PID was pulled away from the vent it continued showing high readings, fluctuating around 700 to 1200 ppm. At around 14:05 we walked the PID upwind of the vacuum tanks and the reading started to drop down, slowly but consistently. Within about 1.5 minutes the reading got down to about 8 ppm. At 14:10:40 Mr. Wittig started pumping the benzene-containing waste into truck #7294. The vent on truck #7294 is different from the vent on truck #470 because it is located about 9 feet off the ground, and it ends as a vertical stack (it does not curve at the end at #470's did). Both operators stood on a ladder to reach the exit of the stack, and they positioned the PIDs so that they were located around the edge of the stack (not directly in the exit stream). At approximately 14:12:45, we observed that the reading on one PID jumped up when the wind blew the exit stream in the direction of that PID.

After truck #7294 finished loading the benzene-containing waste, we talked to the operators who had held the PIDs. They said that the highest reading they got on truck #7294 using the PID with the 10.6 eV lamp (which was not specific to benzene) was 2500 ppm, and that the highest reading they got on truck #7294 using the PID with the 9.8 eV lamp (which was specific to benzene) was 0.3 ppm. They also said that the highest reading they saw on our lamp during the test on truck #7294 was 14.5 ppm. They said that while doing truck #470, the highest reading they saw on the benzene-specific PID was 10.6 ppm.

At the end of the testing, we noticed the benzene separator tube on our PID was completely black (with no orange left), which means that the filter was used up. We did not notice if the filter had become used up before or after the test on truck #7294 began, although we both had seen that it was almost completely orange before we began the test on truck #470.

We left the process area at approximately 14:20.

Closing Conference

We went back to Ms. Postel's office and gathered our belongings. We confirmed that we would send her our data along with the pre- and post-calibration sheets for our PID, and we asked her to also send us the data they got using their PIDs. We speculated that our lamp may not have been reading only benzene, but rather total hydrocarbon, and told her we'd let her know what we found out. We thanked her for her time and we left the facility at approximately 14:30.

Attachments

1. PID Data

Standard bcc's: Official file copy w/attachment(s)

Other bcc's: Mark Ackerman, AE-17J

Creation Date:	March 14, 2011
Filename:	C:\EPAWork\Citgo\Citgo Inspection Report Draft 03 14 11
Legend:	ARD:AECAB:AECAS(MN/OH): v.palmer

Attachment 1

Truck 470

=========Event #17 information (begin)=========

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[Event #17 name:]--[Event #17]2011-02-24 13:43<-->2011-02-24 14:07

[Event start time:]--2011-02-24 13:43:19[Event end time:]--2011-02-24 14:07:04

==========Event #17 head information==========

Product Name: UltraRAE 3000Model Number: PGM-7360 Serial Number: 596-901440

Data Points: 95 Sample Period: 15 s Datalog Mode: Automatic

SITE ID: RAE00007 USER ID: 00000001 Op Mode: Hygiene Mode

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Sensor Information : PID(ppb)

Measurement Gas : Benzene

Calibration Time : 2011-02-16 11:07:00

Drift Value : ---

Low Alarm Levels : 200

High Alarm Levels : 5000

Span Value : 5000

Correction Factor : 1.00

Over Alarm Levels : 5000000

==========Event #17 data informations==========

LINE#	Date/Time	PID(ppb)
1	2/24/2011 13:43	0
2	2/24/2011 13:43	0
3	2/24/2011 13:44	0
4	2/24/2011 13:44	0
5	2/24/2011 13:44	0
6	2/24/2011 13:44	0
7	2/24/2011 13:45	0
8	2/24/2011 13:45	0
9	2/24/2011 13:45	0
10	2/24/2011 13:45	0
11	2/24/2011 13:46	0
12	2/24/2011 13:46	0
13	2/24/2011 13:46	0
14	2/24/2011 13:46	0
15	2/24/2011 13:47	0
16	2/24/2011 13:47	0
17	2/24/2011 13:47	0
18	2/24/2011 13:47	0
19	2/24/2011 13:48	0
20	2/24/2011 13:48	0
21	2/24/2011 13:48	0
22	2/24/2011 13:48	0
23	2/24/2011 13:49	0
24	2/24/2011 13:49	0
25	2/24/2011 13:49	0
26	2/24/2011 13:49	0

27	2/24/2011 13:50	0
28	2/24/2011 13:50	0
29	2/24/2011 13:50	0
30	2/24/2011 13:50	0
31	2/24/2011 13:51	0
32	2/24/2011 13:51	0
33	2/24/2011 13:51	0
34	2/24/2011 13:51	0
35	2/24/2011 13:52	0
36	2/24/2011 13:52	0
37	2/24/2011 13:52	0
38	2/24/2011 13:52	0
39	2/24/2011 13:53	0
40	2/24/2011 13:53	0
41	2/24/2011 13:53	0
42	2/24/2011 13:53	0
43	2/24/2011 13:54	0
44	2/24/2011 13:54	0
45	2/24/2011 13:54	0
46	2/24/2011 13:54	0
47	2/24/2011 13:55	0
48	2/24/2011 13:55	0
49	2/24/2011 13:55	0
50	2/24/2011 13:55	0
51	2/24/2011 13:56	0
52	2/24/2011 13:56	0
53	2/24/2011 13:56	0
54	2/24/2011 13:56	0
55	2/24/2011 13:57	0
56	2/24/2011 13:57	0
57	2/24/2011 13:57	0
58	2/24/2011 13:57	0
59	2/24/2011 13:58	0
60	2/24/2011 13:58	0
61	2/24/2011 13:58	0
62	2/24/2011 13:58	0
63	2/24/2011 13:59	0
64	2/24/2011 13:59	0
65	2/24/2011 13:59	0
66	2/24/2011 13:59	0
67	2/24/2011 14:00	0
68	2/24/2011 14:00	0
69	2/24/2011 14:00	0
70	2/24/2011 14:00	0
71	2/24/2011 14:01	5
72	2/24/2011 14:01	234
73	2/24/2011 14:01	1542

74	2/24/2011 14:01	5726
75	2/24/2011 14:02	66721
76	2/24/2011 14:02	337662
77	2/24/2011 14:02	473996
78	2/24/2011 14:02	996808
79	2/24/2011 14:03	1144407
80	2/24/2011 14:03	1082238
81	2/24/2011 14:03	799393
82	2/24/2011 14:03	464833
83	2/24/2011 14:04	378668
84	2/24/2011 14:04	455830
85	2/24/2011 14:04	274235
86	2/24/2011 14:04	167950
87	2/24/2011 14:05	112392
88	2/24/2011 14:05	69455
89	2/24/2011 14:05	39314
90	2/24/2011 14:05	19843
91	2/24/2011 14:06	9857
92	2/24/2011 14:06	6974
93	2/24/2011 14:06	5280
94	2/24/2011 14:06	4164
95	2/24/2011 14:07	3438

==========Event #17 information (end)==========

Truck 7294

=========Event #22 information (begin)=========

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[Event #22 name:]--[Event #22]2011-02-24 14:09<-->2011-02-24 14:18

[Event start time:]--2011-02-24 14:09:54[Event end time:]--2011-02-24 14:18:09

==========Event #22 head information==========

Product Name: UltraRAE 3000Model Number: PGM-7360 Serial Number: 596-901440

Data Points: 33 Sample Period: 15 s Datalog Mode: Automatic

SITE ID: RAE00007 USER ID: 00000001 Op Mode: Hygiene Mode

==========

Sensor Information : PID(ppb)

Measurement Gas : Benzene

Calibration Time : 2011-02-16 11:07:00

Drift Value : ---

Low Alarm Levels : 200

High Alarm Levels : 5000

Span Value : 5000

Correction Factor : 1.00

Over Alarm Levels : 5000000

==========Event #22 data informations==========

LINE#	Date/Time	PID(ppb)
1	2/24/2011 14:10	0
2	2/24/2011 14:10	0
3	2/24/2011 14:10	0
4	2/24/2011 14:10	0
5	2/24/2011 14:11	0
6	2/24/2011 14:11	0
7	2/24/2011 14:11	0
8	2/24/2011 14:11	0
9	2/24/2011 14:12	0
10	2/24/2011 14:12	0
11	2/24/2011 14:12	41
12	2/24/2011 14:12	2280
13	2/24/2011 14:13	11774
14	2/24/2011 14:13	13638
15	2/24/2011 14:13	26220
16	2/24/2011 14:13	9410
17	2/24/2011 14:14	2507
18	2/24/2011 14:14	609
19	2/24/2011 14:14	142
20	2/24/2011 14:14	20
21	2/24/2011 14:15	0
22	2/24/2011 14:15	0
23	2/24/2011 14:15	0
24	2/24/2011 14:15	0
25	2/24/2011 14:16	0
26	2/24/2011 14:16	0

27	2/24/2011 14:16	0
28	2/24/2011 14:16	0
29	2/24/2011 14:17	0
30	2/24/2011 14:17	0
31	2/24/2011 14:17	0
32	2/24/2011 14:17	0
33	2/24/2011 14:18	0

==========Event #22 information (end)==========